The Influence of Deployment, Marital Status, and Gender on Behavioral Health: *Findings from the 2008 DoD Survey of Health Related Behaviors*

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Objective

To examine substance use and mental health indicators related to

- Combat exposure experiences
- Partnership (family) status
- Gender

DoD Surveys of Health Related Behaviors

Background

- Largest ***anonymous*** population-based health behavior surveys among military personnel
- 10 active duty surveys conducted,1980--2008; 2 Reserve Component surveys 2006, 2010 (in progress)
- Coast Guard included for first time in active duty, 2008
- Sponsored by Asst Sec of Defense (Health Affairs)

Purpose

- Assess lifestyle factors affecting health and readiness
- Identify/track health-related trends and high-risk groups
- Target groups and/or lifestyle factors for intervention
- Help identify future directions for additional studies, DoD programs and policies

Methodology

- Random selection of 64 military installations (70 first stage sampling units) representing Army, Navy, Marine Corps, Air Force, Coast Guard
- Personnel randomly selected at installations based on pay grade and gender
- Personnel sampled with replacement
- Anonymous on-site administration, mail for remote areas
- 28,546 usable questionnaires
- Response rate of 70.6%

Survey Content Areas

- Substance use
  - Alcohol
  - Tobacco
  - Illicit drug use
- Selected Healthy People 2010 Objectives
- Mental well being
- Weight management
- Exercise/fitness/nutrition
- Deployment
- Combat exposure
- Safety - Injuries, helmet use, seat belt use
- Health status
- Spirituality/religiosity
- Job satisfaction
- Sociodemographics and Major Command

Partnership Status

Partnership status was defined in terms of marital status and spouse presence at the duty location. Categories included the following:

- Single (not partnered--personnel never married, widowed, divorced, or separated);
- Partnered, not present (personnel who were legally married or living as married and whose spouse was not at the duty location); and
- Partnered, present (personnel who were legally married or living as married and living with their partner).

Combat Exposure

- New scale in 2008 to assess lifetime level of combat exposure
- Takes into account the levels of combat exposure experienced by personnel during deployments. Sample items include
  - Exposure to incoming fire, mines, improvised explosive devices (IEDs)
  - Firing on the enemy
  - Viewing of dead bodies or human remains
  - Interaction with enemy prisoners of war
- Findings take new steps in exploring how combat experiences may affect substance use and mental health issues upon return from deployment.
- 17 combat-related experiences summed on 5-point scale, with score range 0 to 68
  - Low = 0
  - Moderate = 1 to 9
  - High = 10+

Sociodemographic Characteristics of Active Duty Population, All Services

Sociodemographic Characteristic	Total DoD N= 28,546	Males N= 20,927	Females N= 7,619
Gender			
Male	85.70%		
Female	14.30%		
Race/Ethnicity			
White, non-Hispanic	64.02%	66.04%	51.92%
African American, non-Hispanic	16.68%	15.05%	26.49%
Hispanic	10.43%	10.30%	11.22%
Other	8.86%	8.61%	10.36%
Education			
High School or less	32.75%	34.23%	23.91%
Some College	44.98%	43.97%	51.00%
College Grad or more	22.27%	21.80%	25.10%

Sociodemographic Characteristics of Active Duty Population, All Services

Sociodemographic Characteristic	Total DoD N= 28,546	Males N= 20,927	Females N= 7,619
Age			
17-20	14.73%	14.48%	16.28%
21-25	32.19%	31.52%	36.20%
26-34	29.30%	29.57%	27.65%
35 or older	23.78%	24.43%	19.87%
Paygrade			
E1-E3	21.01%	20.80%	22.31%
E4-E6	51.68%	51.61%	52.10%
E7-E9	10.21%	10.70%	7.25%
W1-W5	7.37%	1.48%	0.75%
O1-O3	9.29%	8.87%	11.75%
O4-O10	6.44%	6.54%	5.82%

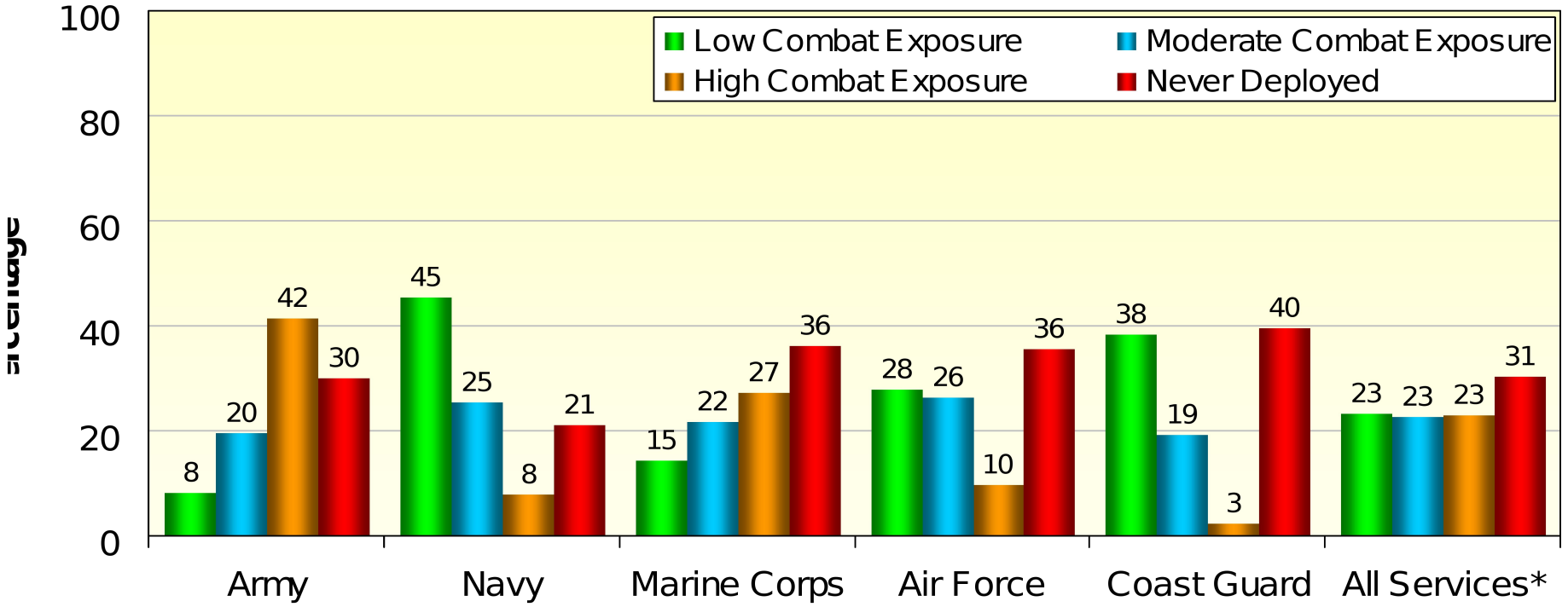
Sociodemographic Characteristics of Active Duty Population, All Services

Sociodemographic Characteristic	Total DoD N= 28,546	Males N= 20,927	Females N= 7,619
Family Status			
Not partnered	39.63%	38.55%	46.21%
Partnered, not present	9.89%	9.85%	10.14%
Partnered, present	50.48%	51.60%	43.65%
Combat Exposure			
Not deployed	30.28%	27.66%	45.44%
Low exposure	22.86%	22.67%	24.00%
Moderate exposure	23.04%	23.37%	21.13%
High exposure	23.82%	26.30%	9.43%

Analyses

- Logistic Regression analyses were conducted for
  - Substance Abuse outcomes
  - Mental Health outcomes
- Focus was on
  - Partnership status
  - Combat exposure
- Analyses controlled for other sociodemographic characteristics of Gender, Age, Pay grade, Education, Race/Ethnicity
- Results are presented at the overall DoD level (Total N = 28,546)

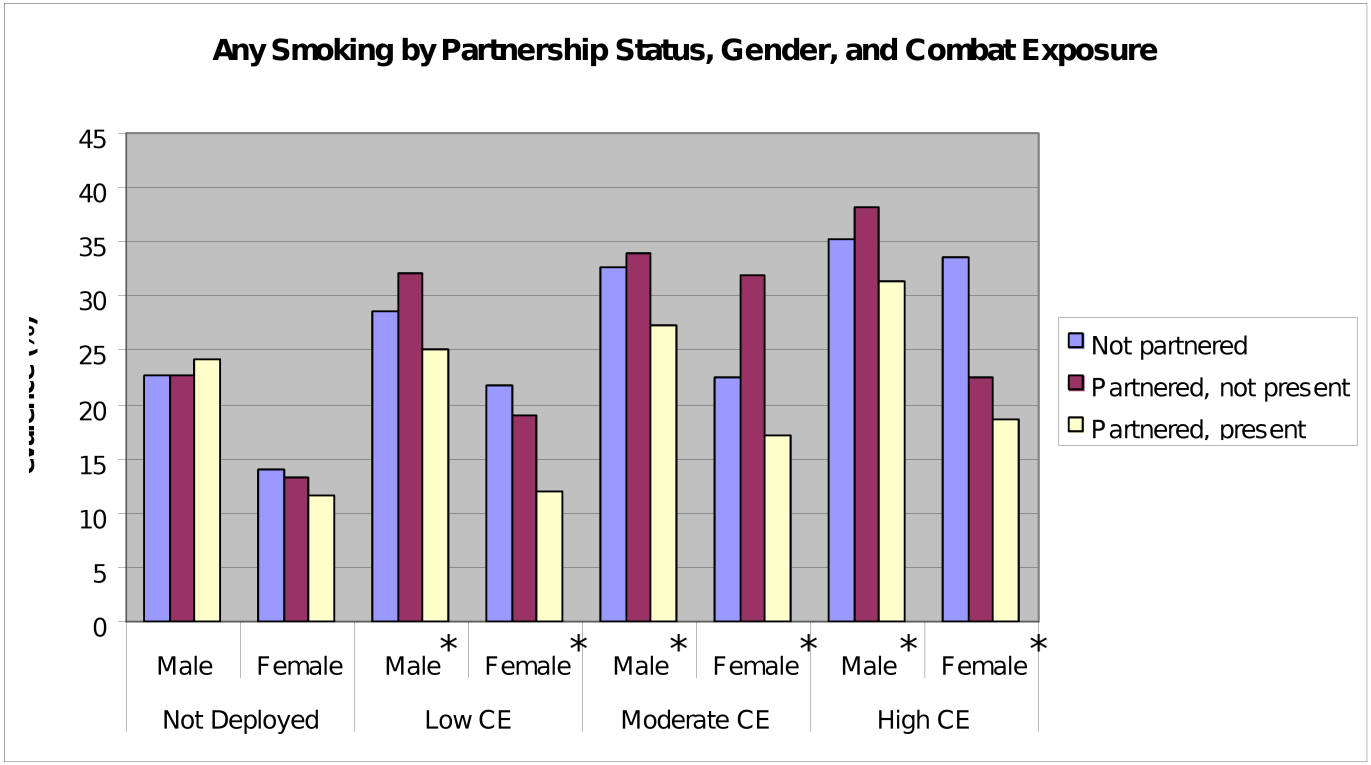
Level of Lifetime Combat Exposure by Service, 2008



Lifetime Combat Exposure: 17 combat-related experiences (e.g., unit fired on enemy, encountered mines/booby traps/IEDS, suffered casualties) summed on 5-point scale. Score range 0 to 68: Low = 0, Moderate = 1 to 9, High = 10+.

* Estimates for DoD Services did not differ significantly from All Services (DoD Services plus Coast Guard).

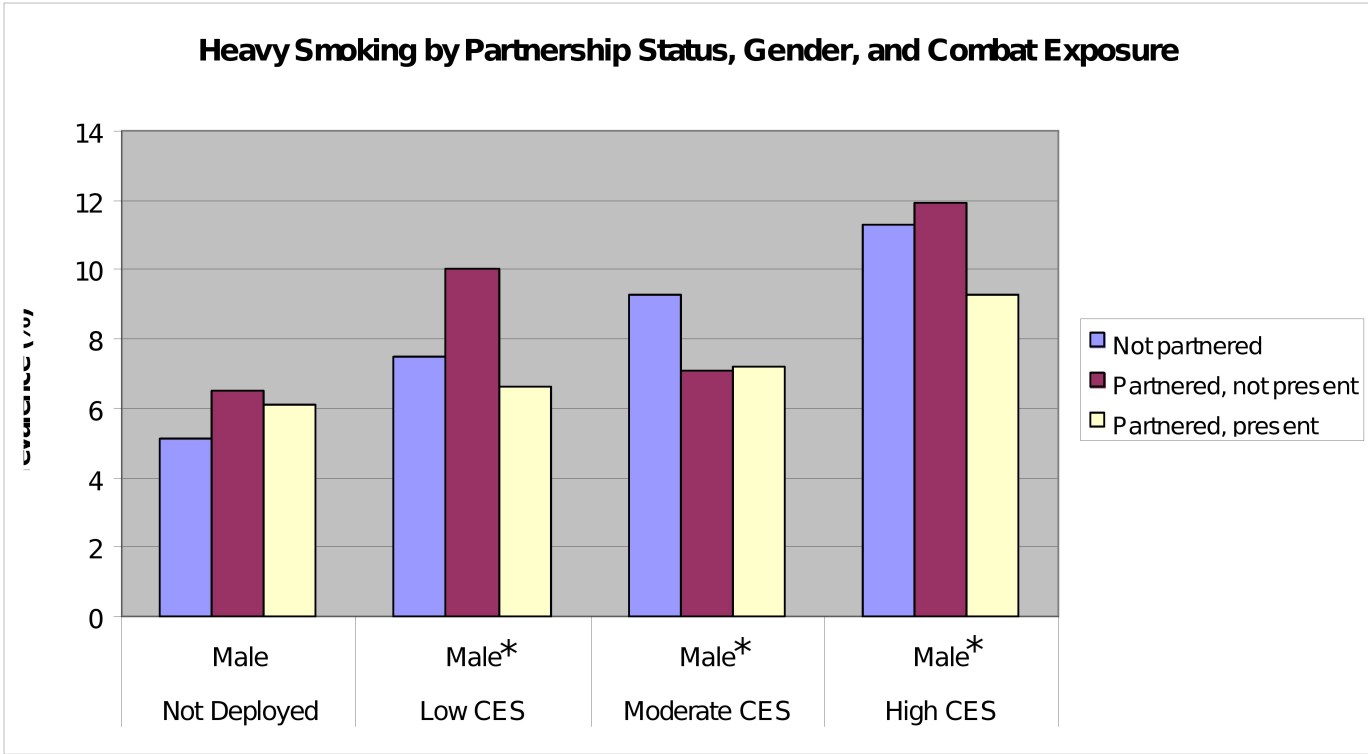
Substance Use: Any Smoking



Odds Ratios	*Any Smoking*	
	Males	*Females*
Not partnered	1.00	1.00
Partnered, not present	1.10	0.97
Partnered, present	**0.87**	0.65
Not deployed	1.00	1.00
Low CE	1.26	1.37
Moderate CE	1.44	1.78
High CE	1.70	2.29

* Indicates significantly different from Not Deployed comparison group within gender

Substance Use: Heavy Smoking

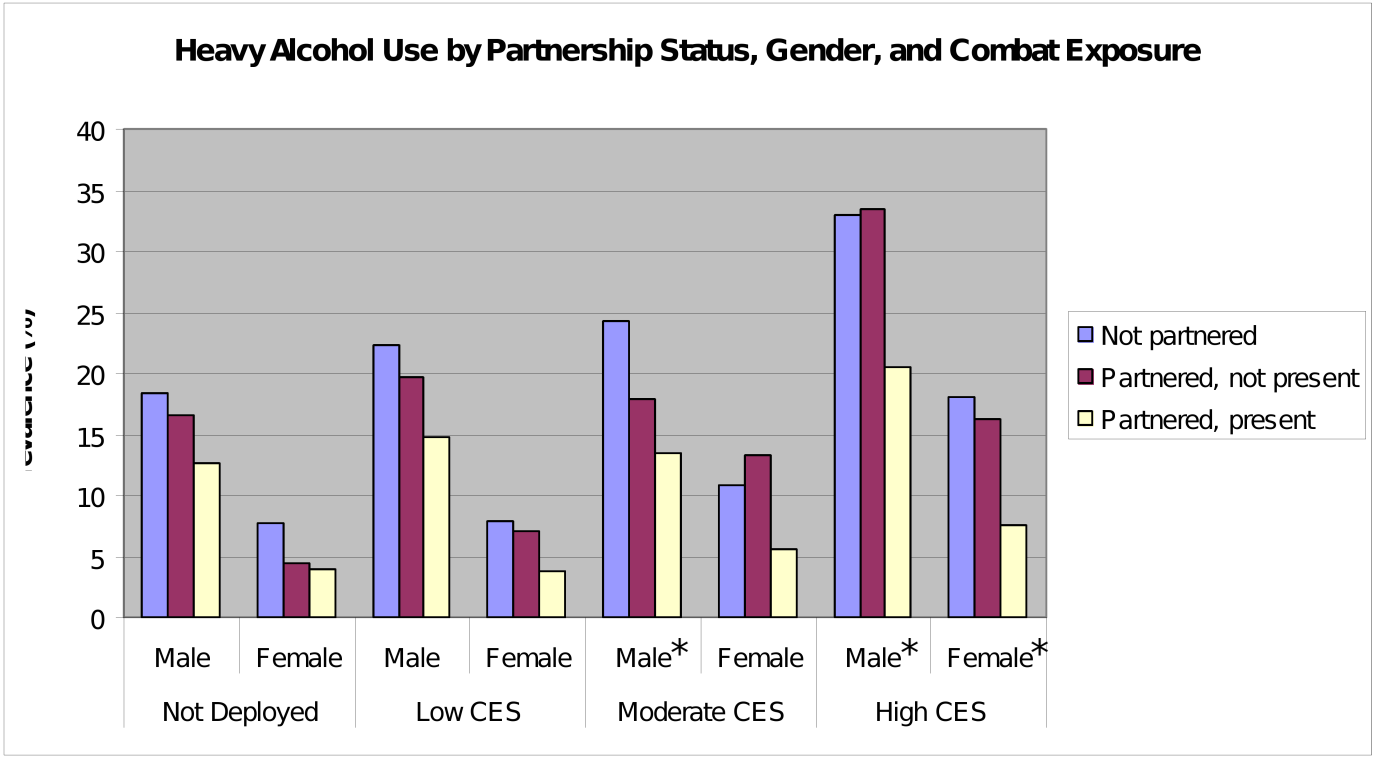


Odds Ratios	*Heavy Smoking*	
	Males	*Total*
Not partnered	1.00	1.00
Partnered, not present	1.12	1.09
Partnered, present	0.89	0.87
Not deployed	1.00	1.00
Low CES	1.35	1.29
Moderate CES	1.49	1.43
High CES	1.97	1.92

Note: Female estimates are not available for Heavy Smoking by Partnership Status and Combat Exposure

* Indicates significantly different from Not Deployed comparison group within gender

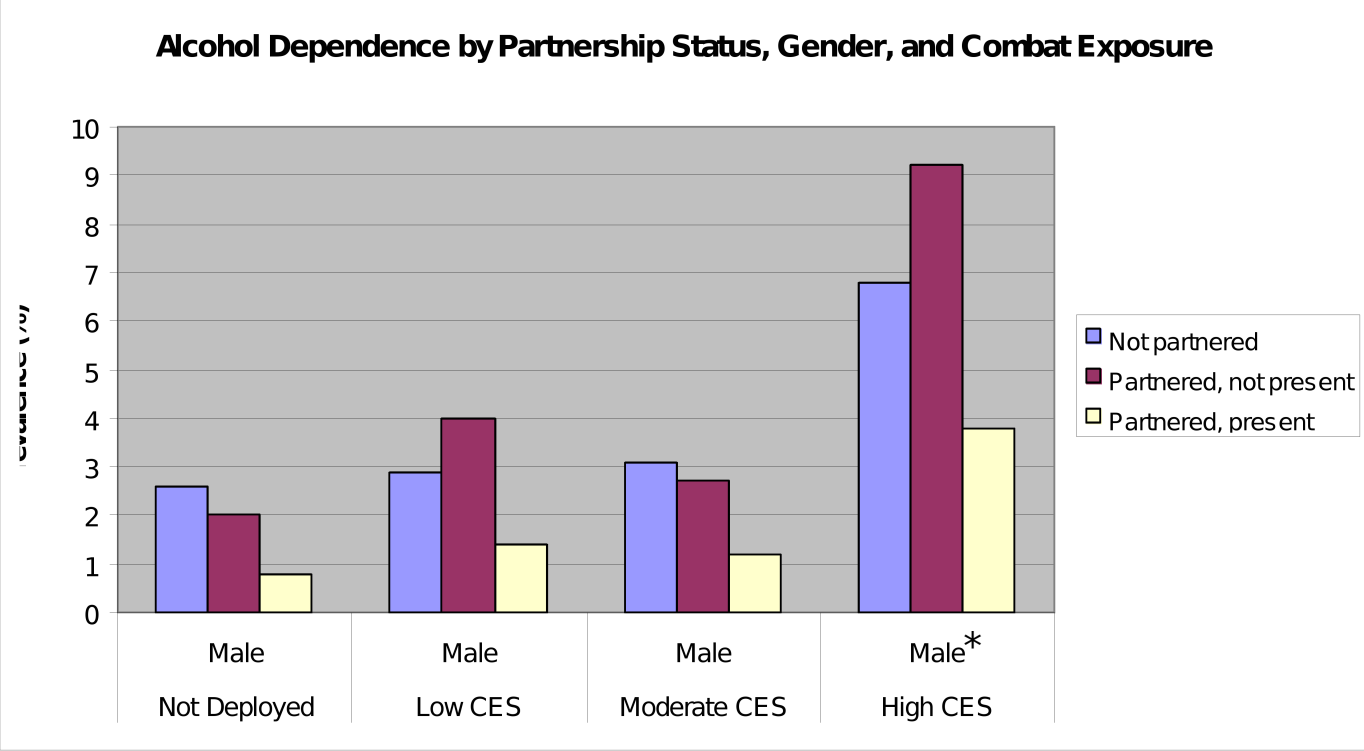
Substance Use: Heavy Alcohol Use



Odds Ratios	*Heavy Alcohol Use*	
	Males	*Females*
Not partnered	1.00	1.00
Partnered, not present	0.88	0.81
Partnered, present	0.56	0.46
Not deployed	1.00	1.00
Low CE	1.26	1.05
Moderate CE	1.23	1.57
High CE	2.04	2.51

* Indicates significantly different from Not Deployed comparison group within gender

Substance Use: Alcohol Dependence

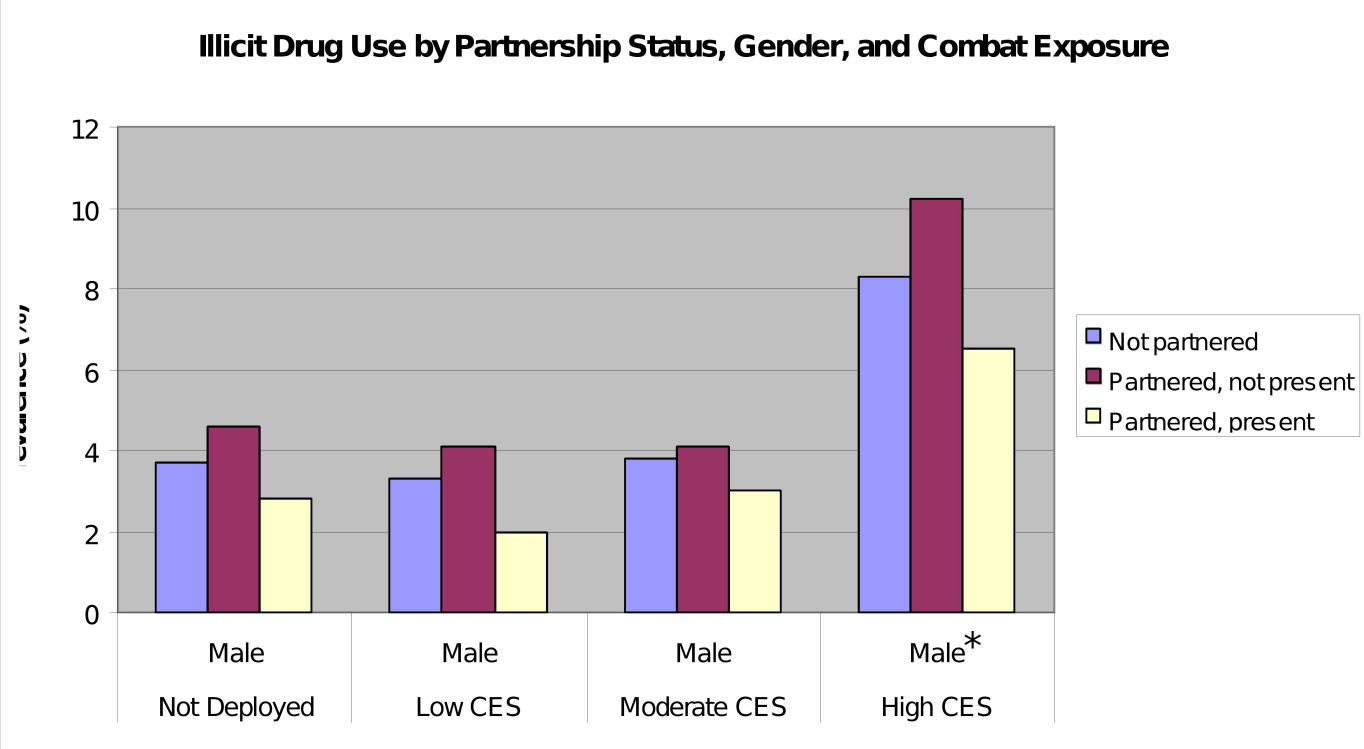


Odds Ratios	*Alcohol Dependence*	
	Males	*Total*
Not partnered	1.00	1.00
Partnered, not present	1.09	1.11
Partnered, present	0.44	0.46
Not deployed	1.00	1.00
Low CE	1.31	1.29
Moderate CE	1.23	1.24
High CE	3.34	3.34

Note: Female estimates are not available for Alcohol Dependence by Partnership Status and Combat Exposure

* Indicates significantly different from Not Deployed comparison group within gender

Substance Use: Illicit Drug Use

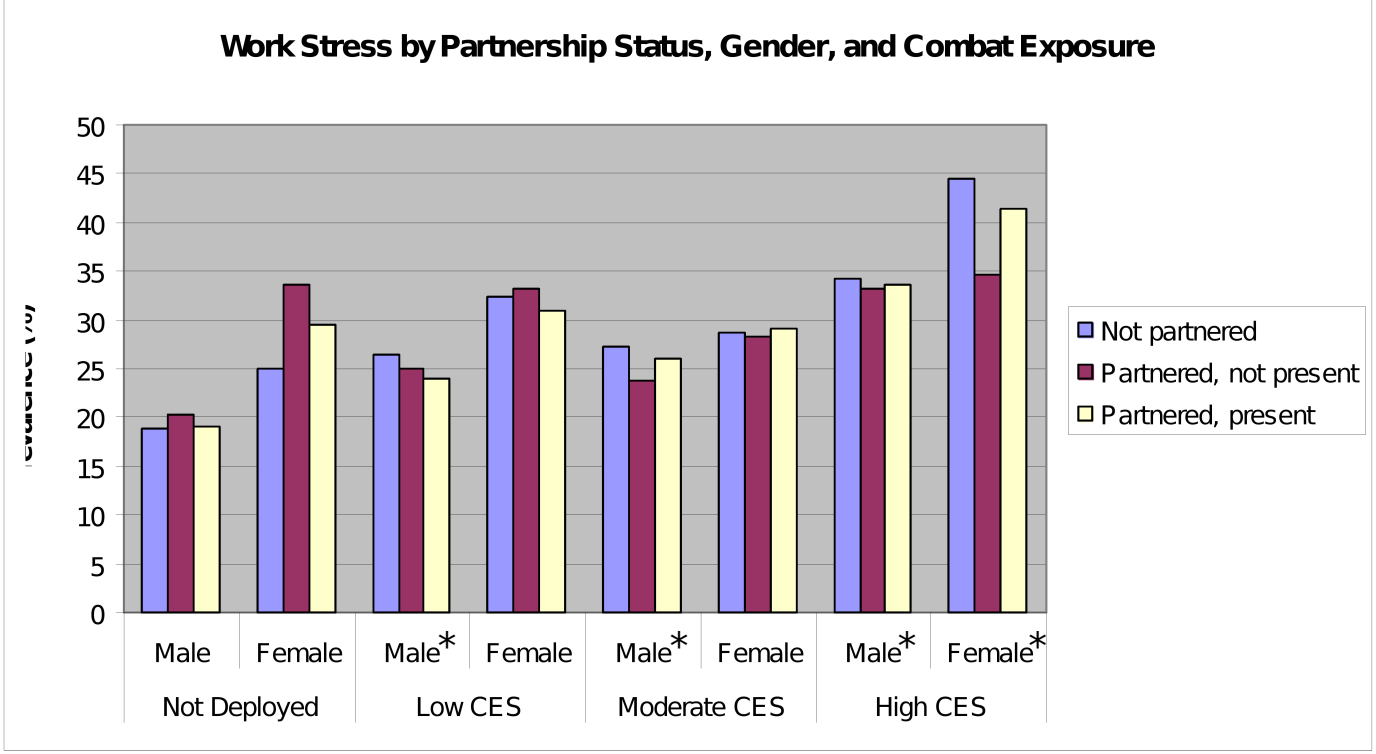


Odds Ratios	*Illicit Drug Use*	
	Males	*Total*
Not partnered	1.00	1.00
Partnered, not present	1.23	1.19
Partnered, present	0.74	0.73
Not deployed	1.00	1.00
Low CE	0.82	0.81
Moderate CE	1.04	1.05
High CE	2.42	2.40

Note: Female estimates are not available for Illicit Drug Use by Partnership Status and Combat Exposure

* Indicates significantly different from Not Deployed comparison group within gender

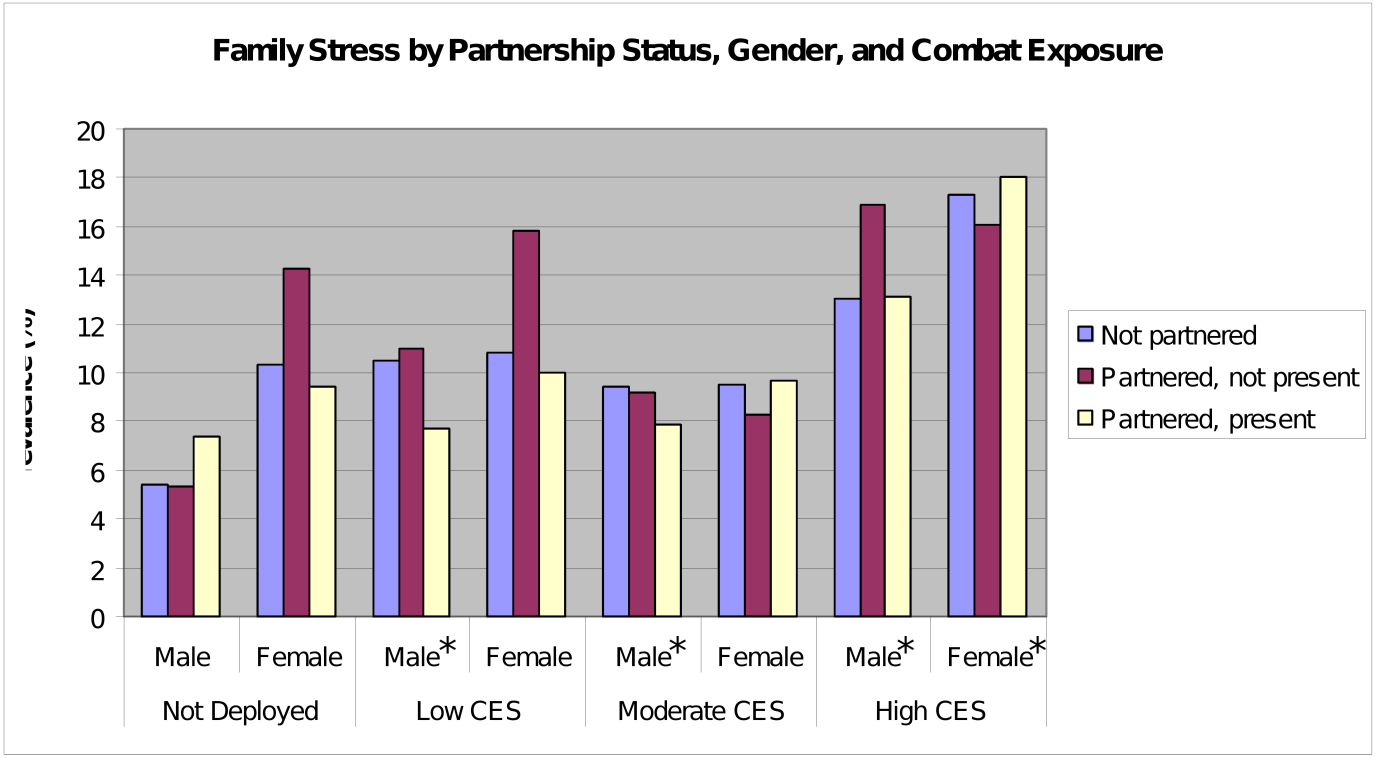
Mental Health: Work Stress



Odds Ratios	*Work Stress*	
	Males	*Females*
Not partnered	1.00	1.00
Partnered, not present	0.96	1.18
Partnered, present	0.96	1.08
Not deployed	1.00	1.00
Low CE	1.42	1.20
Moderate CE	1.53	1.04
High CE	2.20	1.85

* Indicates significantly different from Not Deployed comparison group within gender

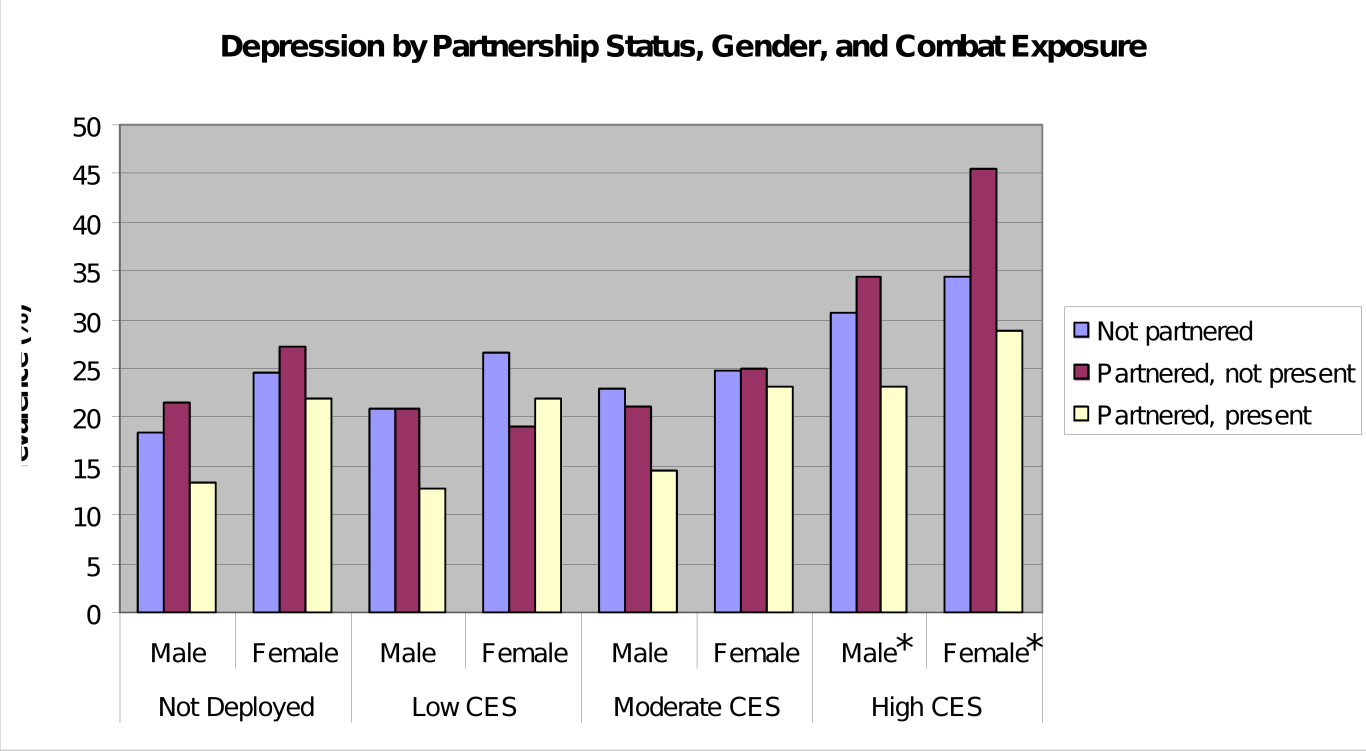
Mental Health: Family Stress



Odds Ratios	*Family Stress*	
	Males	*Females*
Not partnered	1.00	1.00
Partnered, not present	1.14	1.30
Partnered, present	0.95	0.95
Not deployed	1.00	1.00
Low CE	1.57	1.07
Moderate CE	1.47	0.92
High CE	2.44	1.86

* Indicates significantly different from Not Deployed comparison group within gender

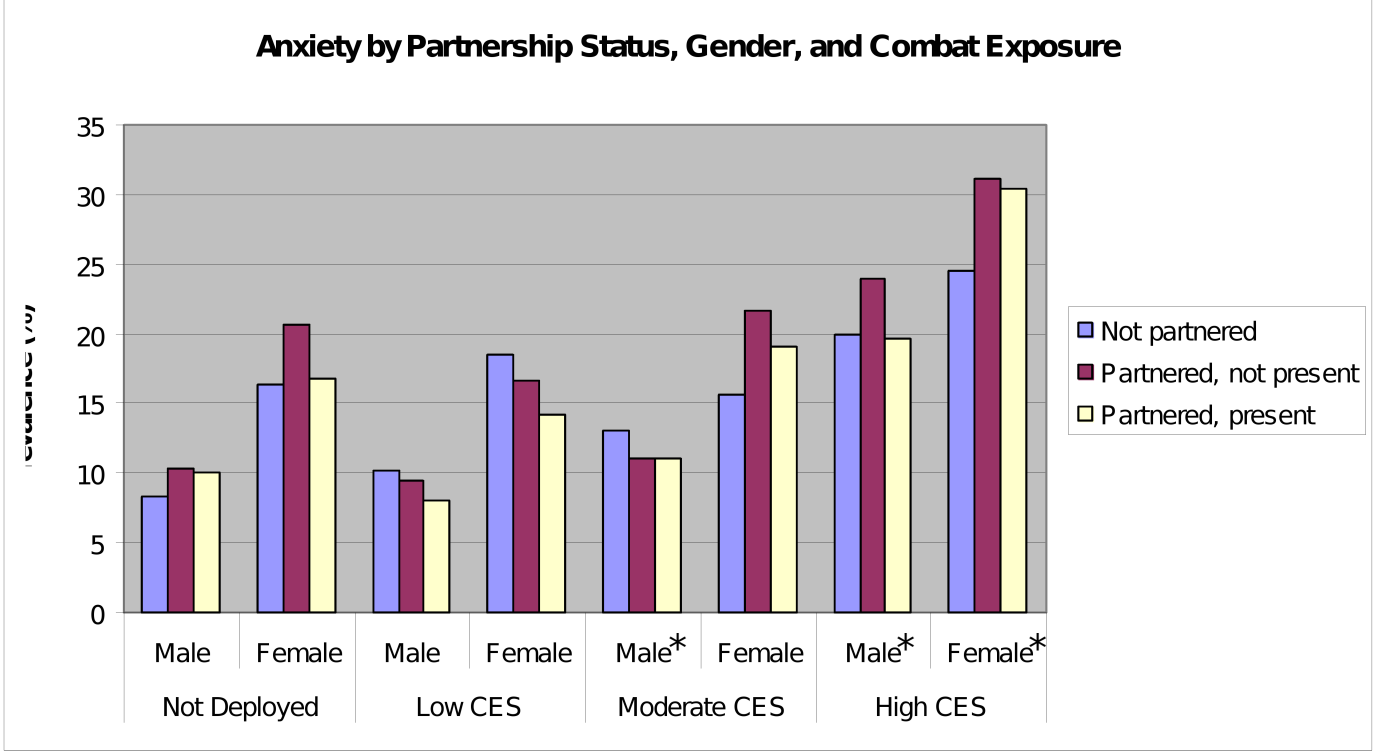
Mental Health: Depression



Odds Ratios	*Depression*	
	Males	*Females*
Not partnered	1.00	1.00
Partnered, not present	1.09	1.04
Partnered, present	0.63	0.84
Not deployed	1.00	1.00
Low CE	1.05	1.01
Moderate CE	1.18	1.03
High CE	1.99	1.60

* Indicates significantly different from Not Deployed comparison group within gender

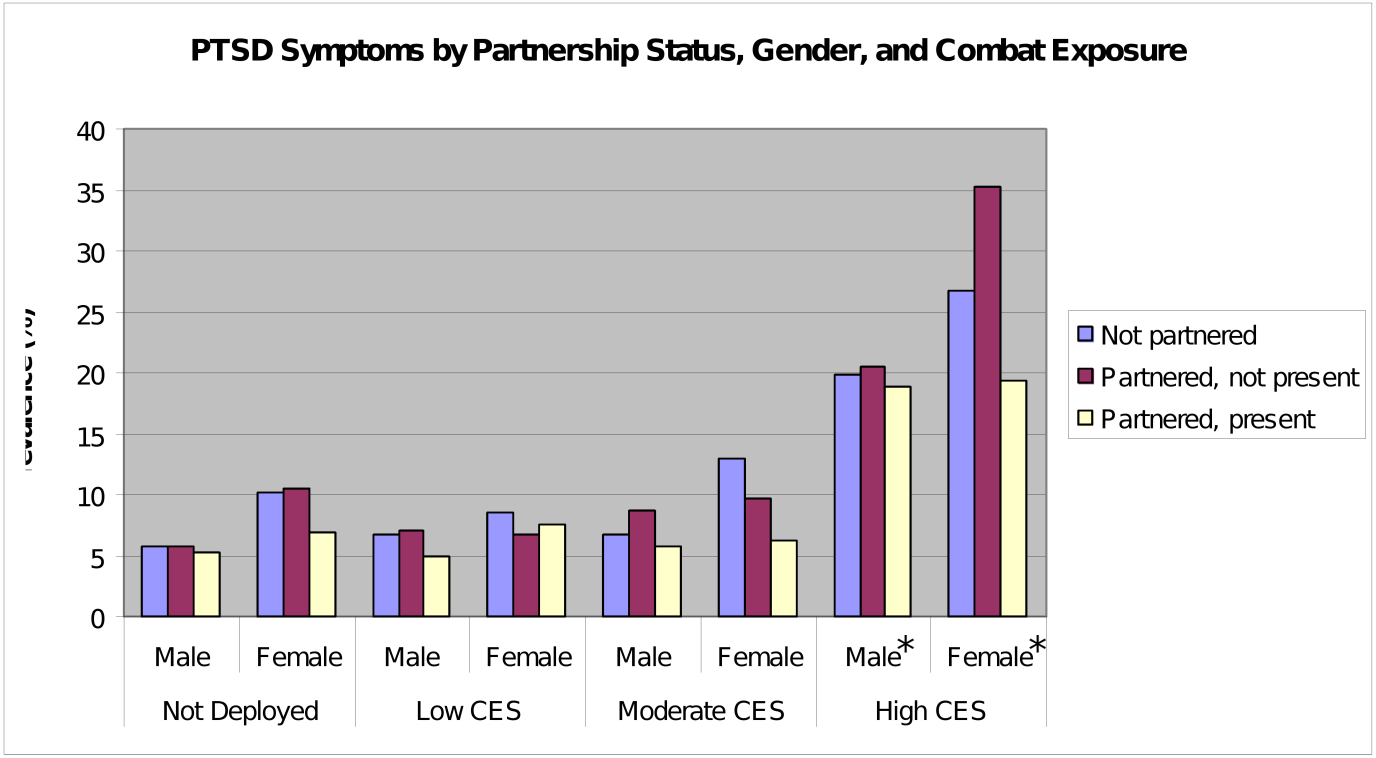
Mental Health: Anxiety



Odds Ratios	*Anxiety*	
	Males	*Females*
Not partnered	1.00	1.00
Partnered, not present	1.12	1.25
Partnered, present	0.96	1.02
Not deployed	1.00	1.00
Low CE	0.99	0.95
Moderate CE	1.35	1.06
High CE	2.56	1.90

* Indicates significantly different from Not Deployed comparison group within gender

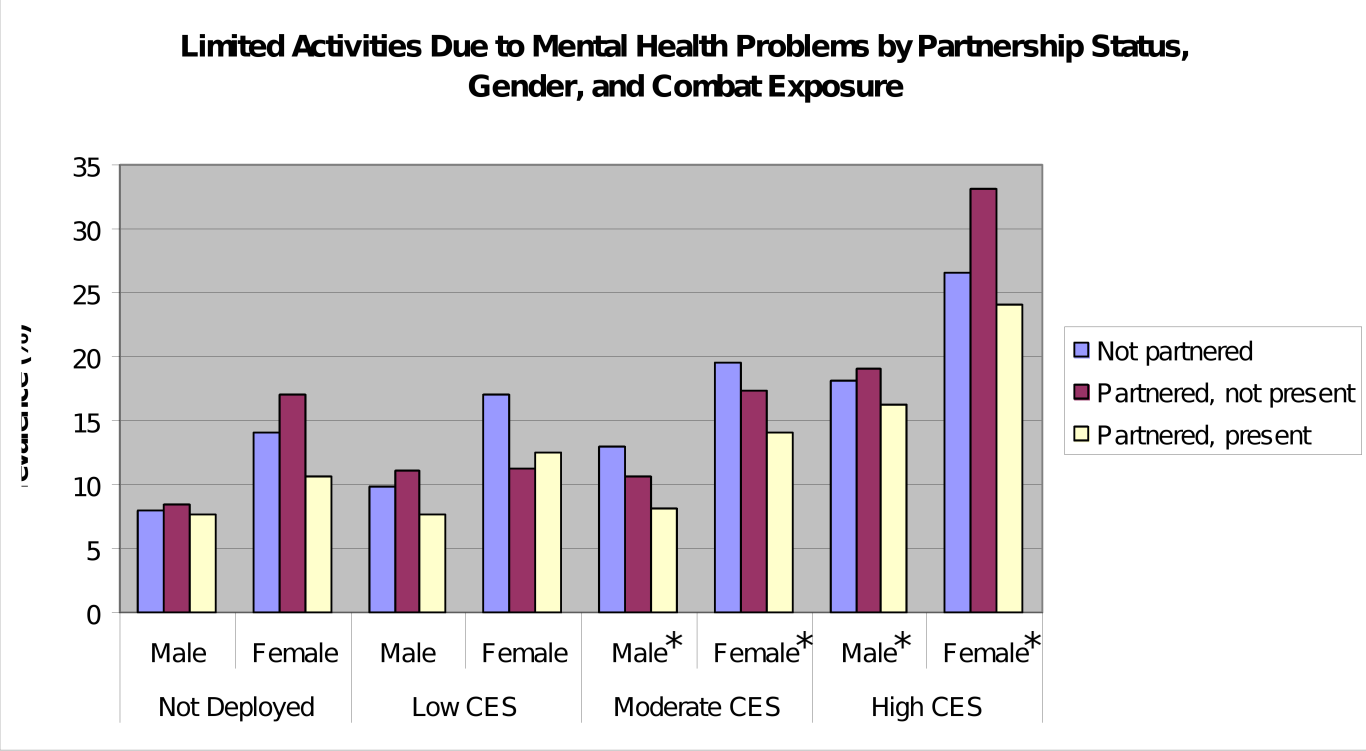
Mental Health: PTSD Symptoms



Odds Ratios	*PTSD Symptoms*	
	Males	*Females*
Not partnered	1.00	1.00
Partnered, not present	1.06	0.98
Partnered, present	0.87	0.65
Not deployed	1.00	1.00
Low CE	1.07	0.91
Moderate CE	1.18	1.09
High CE	4.17	3.34

* Indicates significantly different from Not Deployed comparison group within gender

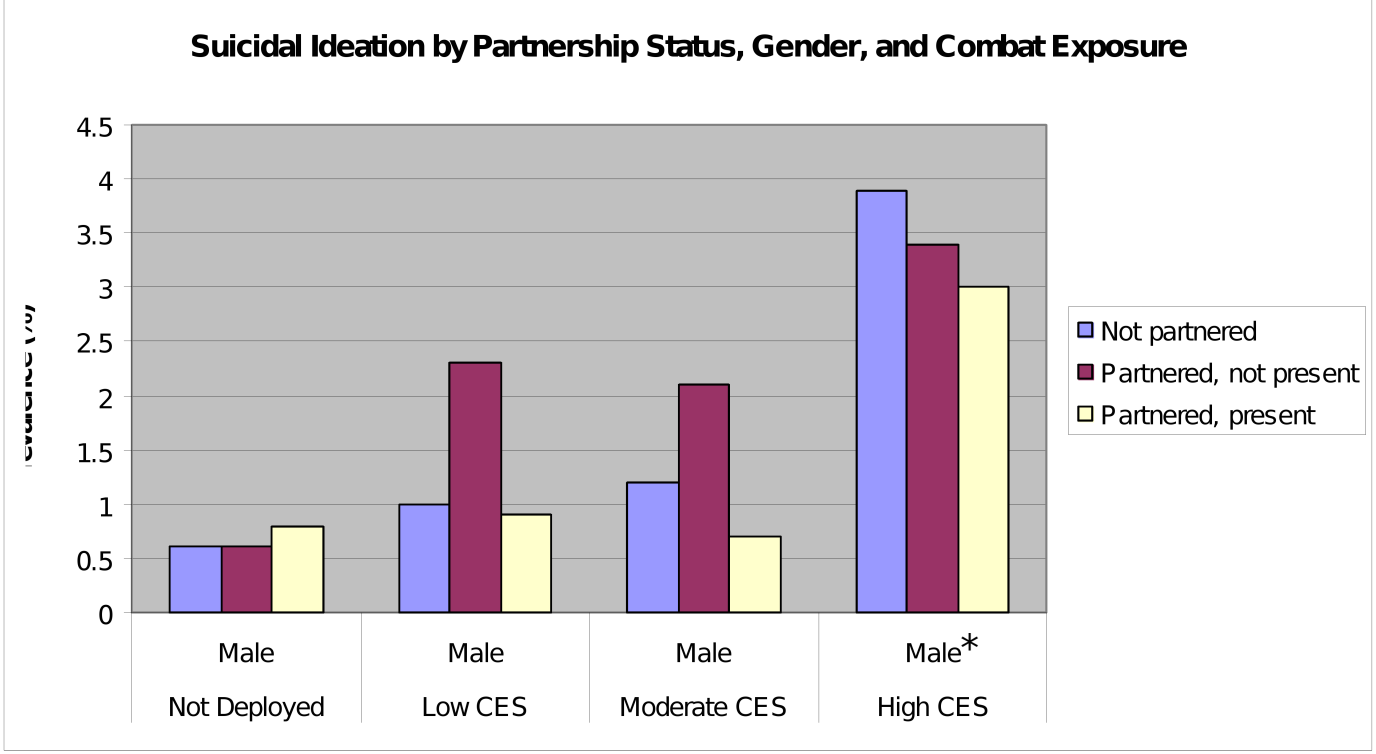
Mental Health: Limited Usual Activities



Odds Ratios	*MH Limited Usual Activities*	
	Males	*Females*
Not partnered	1.00	1.00
Partnered, not present	1.02	1.03
Partnered, present	0.80	0.73
Not deployed	1.00	1.00
Low CE	1.18	1.14
Moderate CE	1.36	1.37
High CE	2.54	2.42

* Indicates significantly different from Not Deployed comparison group within gender

Mental Health: Suicidal Ideation



Odds Ratios	*Suicidal Ideation*	
	Males	*Total*
Not partnered	1.00	1.00
Partnered, not present	1.20	1.02
Partnered, present	0.82	0.74
Not deployed	1.00	1.00
Low CE	1.63	1.94
Moderate CE	1.52	1.80
High CE	5.19	5.63

Note: Female estimates are not available for Suicidal Ideation by Partnership Status and Combat Exposure

* Indicates significantly different from Not Deployed comparison group within gender

Summary of Findings: Partner Status

Substance Use:

- In general, Single Service Member status (non-partnered) had higher risk of substance use than did partnered service members whose partners were present at the time they took the survey
  - smoking, heavy alcohol use, possible alcohol dependence, and illicit drug use
  - Odds Ratios showed a protective factor for partner present of .45-.87 compared to single service members (all significant)
- In general, unaccompanied Partnered Service Members behaved like Single Service Members
  - Odds Ratios showed no protective factor of having a partner if that partner was not present with the spouse at the time of the survey

Summary of Findings: Partner Status

Mental Health:

- In general, Single Service Member status (non-partnered) had higher risk of mental health issues than did partnered service members whose partners were present at the time they took the survey
  - depression, PTSD symptoms, limitation of usual activities due to mental health, and suicidal ideation Partnership status does not seem to impact perceived levels of work and family stress
  - Odds Ratios showed a protective factor for partner present of .66-.78 compared to single service members, for all factors other than anxiety
- In general, unaccompanied Partnered Service Members behaved like Single Service Members
  - Odds Ratios showed no protective factor of having a partner if that partner was not present at the time of the survey

Summary of Findings: Combat Exposure

Substance Use

- Increases in Combat Exposure was associated with increases in all Substance Use assessed.
  - Odds ratios ranged from 1.7 (Smoking) to 3.3 (Alcohol Dependence)

Mental Health

- Increases in Combat Exposure was associated with increases in Mental Health problems
  - Work stress, Family stress, Depression, Anxiety, PTSD, Suicidal Ideation, Limited activities due to mental health
  - Odds ratios included 2.2 for Work stress, 2.4 for Family Stress, 1.9 for Depression, 4.2 for PTSD, and 5.6 for Suicidal Ideation in High Exposure vs No Exposure
- No Interaction was found between Partner Status and Combat Exposure

Summary of Findings: Gender

- In general, Females showed a different pattern than males
- **Substance Use**
  - Females had generally *lower* substance use
- **Mental Health**:
  - Females had generally *higher* mental health problems

Implications for Single Service Members

- Partnership status does pose some threat as a risk factor against substance use and mental health problems
  - Not having a partner present at the duty location is related to higher rates of substance use and mental health problems
  - This issue seems further exacerbated for Service Members with higher levels of combat exposure

Looking Ahead

Suggested areas of further investigation:

- Focus attention on issues unique to Single Service Members (both single and geographically single)
- Examine protective factors against substance use, stress, and mental health issues, such as social support, in conjunction with partnership status
- Examine pre- and post-deployment factors (training and reintegration services) related to protective factors
- Examine other risk factors associated with deployment and combat exposure, such as length and number of deployments

Questions?

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